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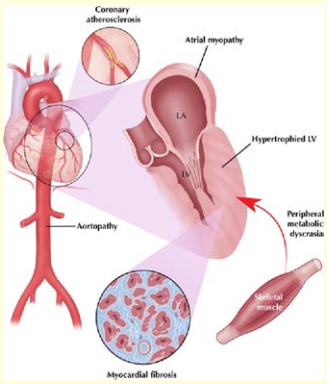
STATE-OF-THE-ART PAPERS



(continued on page A-24)

CLINICAL RESEARCH

ACUTE MYOCARDIAL INFARCTION

Immediate Versus Delayed Angioplasty for STEMI Patients Who Receive Thrombolysis

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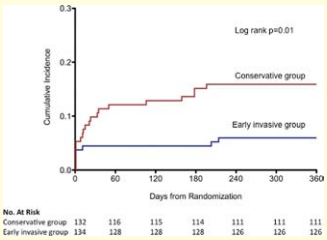

Ellen Bøhmer, Pavel Hoffmann, Michael Abdelnoor, Harald Arnesen, Sigrun Halvorsen

The NORDISTEMI (NORwegian study on DIstrict treatment of ST-Elevation Myocardial Infarction) trial compared a strategy of immediate transfer for percutaneous coronary intervention (PCI) to an ischemia-guided approach in ST-segment elevation myocardial infarction (STEMI) patients who initially received thrombolysis because of very long transfer distances to PCI-capable facilities. All subjects were treated with tenecteplase, aspirin, enoxaparin, and clopidogrel, and were then randomized to immediate transfer for PCI or to standard management with early transfer only for clinical deterioration or rescue indication. There was no significant reduction in the primary end point (composite of death, reinfarction, stroke, or new ischemia within 12 months), but when new ischemia, which was a soft end point, was excluded the hazard ratio was 0.36, favoring immediate transfer for PCI. These results suggest that patients who receive thrombolysis benefit by being transferred to a PCI-capable facility.

Editorial Comment: Jeremy W. Buckley, Brahmajee K. Nallamothu, p. 111

ASPIRIN RESISTANCE

Omega-3 Fatty Acids May Be Effective for Treating Aspirin Resistance

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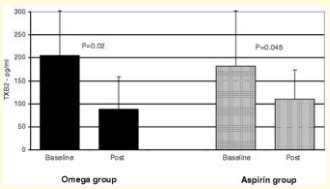


Eli I. Lev, Alejandro Solodky, Naama Harel, Aviv Mager, David Brosh, Abid Assali, Milton Roller, Alexander Battler, Neal S. Kleiman, Ran Kornowski

Lev and colleagues hypothesized that the addition of omega-3 fatty acids might ameliorate aspirin resistance by decreasing the availability of platelet arachidonic acid (AA) and, indirectly, thromboxane A2 formation. Thirty subjects who had aspirin resistance were randomized to either low-dose aspirin plus omega-3 fatty acids (4 capsules daily) or high-dose aspirin (325 mg) daily. Following 30 days of treatment, there were significant and similar reductions in AA- and ADP-induced aggregation and the VerifyNow Aspirin assay score in both groups. These results suggest that aspirin-resistant patients can be treated either by adding omega-3 fatty acids or increasing the aspirin dose, but a large clinical trial is necessary to determine which method is superior.

(*continued on page A-28*)

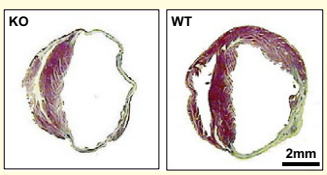
SUDDEN DEATH

Kramer and colleagues reviewed medical examiner cases of sudden coronary death (SCD) to determine which types of atherosclerotic plaque lead to coronary thrombosis and then to SCD. Over 100 cases in which coronary thrombosis was the likely cause of death were studied in detail, including the histology of the plaque and the components of the thrombus. In the majority of cases, SCD did not follow suddenly upon thrombus formation, with many thrombi in the "infiltrating" or "healing" stage, suggesting that they were at least 4 days old. The severity of stenosis, the necrotic core size, and the total plaque burden were all greater in the ruptured plaque group. Erosions tended to have older, healing thrombi. The differences between plaque erosions and ruptures suggest the possibility that erosions and ruptures should be treated differently.

Editorial Comment: Richard I. Levin, p. 133

PRE-CLINICAL RESEARCH

PRE-CLINICAL RESEARCH



Zaidi and colleagues studied the function of the protein growth differentiation factor 5 (Gdf5) in a mouse model of myocardial infarction (MI). Gdf5-knockout (KO) and wild type (WT) mice were subjected to permanent left anterior descending coronary artery ligation. WT mice showed increased cardiac Gdf5 levels post-MI, with increased expression in peri-infarct cardiomyocytes and myofibroblasts. By 28 days post-MI, Gdf5-KO mice exhibited increased infarct scar area, increased left ventricular dilation, and decreased contractility. Gdf5-KO mice also exhibited increased cardiomyocyte apoptosis. Increased expression of Gdf5 post-MI may limit infarct scar expansion and help to reduce cardiac remodeling.

Editorial Comment: Georg Ertl, Thomas Thum, p. 144

YEAR IN CARDIOLOGY SERIES

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Graham reviewed the literature for papers describing the results of surgical or catheter-based interventions for patients with congenital heart disease. The papers are divided into sections by the pathologic condition, including tetralogy of Fallot, Fontan surgery, transposition of the great arteries, hypoplastic left heart syndrome, aortic valve surgery, aortoplasty, and ventricular septal defect management. The 32 papers summarized in these particular areas were chosen because of the importance to the general field of congenital heart disease and provide a brief summary for the interested reader.